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SPECIFICATIONS

56700 PATCHER II™ (200 GAL) DIESEL-FUELED

December 2025

The purpose of these specifications is to describe a double-boiler type mixer specifically designed for and shall be capable of heating and melting Crafco TechCrete, Mastic and Matrix products. All qualified bidders must have and maintain a complete inventory of repair parts and have experienced factory-trained service personnel for this equipment.

	Comply	Does Not Comply
1. GENERAL		
A. This machine shall be the manufacturer's current production model manufactured in the United States of America.	_____	_____
B. The machine will be capable of starting at ambient temperature and be ready for operation in one and a half hours or less.	_____	_____
C. A comprehensive safety manual and an operational/maintenance manual shall be supplied with each unit.	_____	_____
D. Thermostatic control for the heat transfer medium shall be provided and shall have sufficient sensitivity to maintain product temperature within the manufacturer's specified application temperature range.	_____	_____
E. Temperature indicating devices shall have intervals no greater than 5°F (2.8°C) and shall be calibrated as required to assure accuracy.	_____	_____
F. The mixer shall have a continuous material mixing system to provide uniform viscosity and temperature of the material being applied.	_____	_____
2. REQUIRED SAFETY FEATURES		
A. The unit shall have a safety shut-off on the lid that automatically stops the agitator when the lid is opened.	_____	_____
B. This unit shall have a safety chain in place to prevent accidental discharge of material.	_____	_____
C. The unit shall be oil jacketed to ensure safe heating and handling of materials. Direct fire and air-jacketed units are not acceptable.	_____	_____
D. All fluid tanks shall be located and mounted above the top of the trailer frame to prevent exposure and damage.	_____	_____
E. The material tank meets all FMCSA requirements for elevated temperature materials by meeting CFR Title 49, Part 173.247.	_____	_____
F. Other_____ _____	_____	_____

	Comply	Does Not Comply
3. TOWING FRAME AND JACK		
A. This machine shall be trailer mounted.	_____	_____
B. The longitudinal side frames and tongue members of the trailer shall be on one continuous piece construction composed of hot rolled steel channel having the minimum dimensions of 5 inches (12.70 cm) web, 3/16 inch (.48 cm) thickness with 1.75 inch (4.5 cm) flanges.	_____	_____
C. The configuration of the channels shall be cold formed with the flanges on the outside resulting in a one-piece frame member with no cross-welding of or on the flanges to avoid any possibility of flange stress cracking.	_____	_____
D. The tongue shall be equipped with an appropriate heavy duty pintle hitch. It shall be adjustable in height above ground level from a minimum of 14 inches (35.6 cm), to a maximum of 32 inches (81.3cm), permitting level towing with a wide range of towing vehicles.	_____	_____
E. The towing hitch shall be bolted to the hitch plate for easy height adjustment and conversion to other hitches.	_____	_____
F. A screw-post tongue jack shall be a heavy-duty type with a load capacity of 5,000 pounds (2,268 kg), and it shall be side-mounted and swing away for positive road clearance while under tow.	_____	_____
G. Other_____ _____	_____	_____
4. RUNNING GEAR		
A. The unit shall be equipped with a dual independent rubber torsional suspension having a safe load capacity of 9,900 pounds (4,491 kg), electric brakes, modular disc wheels, and ST225 R75 - 15 tubeless tires (Load Range D).	_____	_____
B. This suspension eliminates springs and shackles that rust and reduce ground clearance.	_____	_____
C. The trailer shall have dual LED taillights, stop lights and turn signals.	_____	_____
D. Lights shall be ICC-approved.	_____	_____
E. A license plate holder and light shall also be attached to the rear of trailer.	_____	_____

	Comply	Does Not Comply
F. The unit shall also be equipped with two safety chains not less than 48 inches (121.9cm) of .38 inches. (.97 cm) coil proof chain, attached to the tongue with a drilled type clevis pin on the end attached to the frame and a screw type clevis pin on the opposite end.	_____	_____
G. The total shipping weight is approximately 5,300 pounds (2404 kg).	_____	_____
H. Other_____ _____	_____	_____

5. HEATING TANK

A. The material heating tank shall be a U- shaped vessel with 17 inches (86 cm) radius by 48 inches (122 cm) long having a capacity of 200 gallons (757 L) at ambient temperature.	_____	_____
B. The tank will have a rear discharge with a minimum opening of 42 square inches, which drops material onto an eight-inch-long spout.	_____	_____
C. The minimum height from the bottom of the spout to the ground shall be 19 inches to allow the use of a material handler or optional material chutes.	_____	_____
D. A double boiler-type jacket shall create a reservoir that shall hold a minimum of 35 gallons (132 L) of heat transfer oil at 70°F (21.1°C). (Note: at 500°F (260°C) the heating oil will expand by approximately 18%)	_____	_____
E. The jacket shall wrap around 100% of the outside area of the material tank including the sides, front, back and bottom and allow for complete circulation of the heated transfer oil.	_____	_____
F. The tank and jacket shall be made of not less than 0.1875 inch (0.476 cm) hot roll steel.	_____	_____
G. There shall be one plug to allow the entire heat transfer oil system to be drained.	_____	_____
H. The heat transfer oil shall be ISO grade 68.	_____	_____
I. The heating tank shall be insulated with a minimum of 1.5 inches (3.81 cm) thick high temperature ceramic insulation and covered by a 12 gauge (0.27 cm) steel outer wrapper.	_____	_____
J. Fiberglass or rock wool insulation is unacceptable due to their moisture retention properties resulting in a significant loss of their insulating value.	_____	_____
K. Tank shall have two (2) 1500-watt 110-volt electric overnight heaters. (220V heaters available as options)	_____	_____
L. Other_____ _____	_____	_____

	Comply	Does Not Comply
6. EXPANSION TANK		
A. A vented expansion tank for heat transfer oil shall be provided.	_____	_____
B. Other_____ _____	_____	_____
7. HYDRAULIC SYSTEM		
A. The hydraulic system shall incorporate a hydraulic pump to power the mixer.	_____	_____
B. Mixer valve shall be solenoid operated by toggle switch located in the burner control box.	_____	_____
C. The control will allow for bi-directional operation of the mixer.	_____	_____
D. A flow control valve will be mounted by the burner control box to allow the operator to adjust the mixer operating speed.	_____	_____
E. The minimum 15 gallon (57 L) hydraulic tank will be equipped with an internal 10-micron full-flow filter.	_____	_____
F. The filter shall be equipped with a restriction indicator to indicate the need for service.	_____	_____
G. Other_____ _____	_____	_____
8. INSULATION		
A. The heating tank shall be insulated with a minimum of 1-½ inch (3.81 cm) thick high temperature ceramic insulation and covered by a 12-gauge (.27 cm) steel outer wrapper.	_____	_____
B. Fiberglass or rock wool insulation is unacceptable due to their moisture retention properties resulting in a significant loss of their insulating value.	_____	_____
C. Other_____ _____	_____	_____
9. LOADING HATCH		
A. One low profile opening for loading shall be required.	_____	_____
B. The loading height shall not exceed 61.5 inches (156 cm).	_____	_____
C. The opening shall have a minimum area of 384 square inches (2477 square cm).	_____	_____
D. One opening shall be equipped with a permanent grated inner cover plate suitable to store a material bucket to allow draining back into the material tank.	_____	_____
E. Each lid shall have a latching system to prevent accidental	_____	_____

	Comply	Does Not Comply
opening.		
F. Other_____ _____		

10. HEATING SYSTEM

A. The heat transfer oil is heated by a 369,000 BTU diesel burner at the bottom of the heat transfer oil tank.		
B. The burner shall fire into an easy access removable burner combustion box. The box will be insulated by a high temperature flexible insulation that is resistant to damage from the vibration and over road travel. Rigid insulation is unacceptable.		
C. The burner and combustion box shall be positioned offset from the center of the machine towards the passenger side frame rail. To allow safe and easy access for maintenance and repair, no components shall be positioned between the passenger side frame rail and the burner/combustion box.		
D. The total area exposed to the burner shall be a minimum of 5,941 square inches (38,328 square cm).		
E. The material tank shall have a minimum of 5,736 square inches (37,006 square cm) of contact with the heat transfer oil.		
F. If equipped with an optional heated material chute system, a pump that circulates the heat transfer oil is also included to provide fast and reliable heating of the heated material chute.		
G. Other_____ _____		

11. IGNITION OF BURNER

A. The burner shall be lit by a constant duty high voltage transformer powering an electric spark igniter.		
B. This igniter shall work with a sensor that detects a lack of burn or ignition and shuts down the fuel supply.		
C. The burner fuel system is self-priming with a removable in-line filter along with feed and return lines to the main fuel tank.		
D. The thermostat control is located on the curbside of the machine for operator safety.		
E. Other_____ _____		

12. TEMPERATURE CONTROL

A. The mixer shall have a thermostatic control device that will automatically regulate hot oil and material temperature.		

	Comply	Does Not Comply
B. The control shall have a digital readout for temperatures of hot oil and material.	_____	_____
C. The thermostat shall control burner ignition for a material temperature range from a low of 200°F (93.3°C) up to a high of 450°F (232.2°C).	_____	_____
D. The hot oil temperature range shall be from a low of 150°F (65.5°C) up to a high of 550°F (287.7°C).	_____	_____
E. The controls shall be activated by a single power switch.	_____	_____
F. All temperature controls shall be contained in a single weatherproof control box.	_____	_____
G. The burner has an audible 105db alarm that will sound in the event the burner goes into lockout mode. There is a reset switch to reset the burner if it goes into lockout mode.	_____	_____
H. Other_____ _____	_____	_____

13. <u>DRIVE AND DRIVE CONTROLS</u>

A. The motive force of the mixer shall be a hydraulic motor driven by a single hydraulic pump.	_____	_____
B. The drive control governing the rotational direction of the mixer shall be controlled by a solenoid-operated hydraulic control valve.	_____	_____
C. The valve is electrically actuated by a toggle switch on the burner control panel and can be reversed as required.	_____	_____
D. A flow control valve can be used to adjust mixer rotational speed.	_____	_____
E. The hydraulic tank will be equipped with an internal 10-micron full flow filter that includes an indicator to indicate the need for service.	_____	_____
F. A sight level indicator equipped with a thermometer to measure oil temperature will be mounted on the tank and located where it is easily viewed.	_____	_____
G. Other_____ _____	_____	_____

14. <u>AGITATION</u>

A. The material shall be mixed by a hydraulically driven, full sweep horizontal mixer shaft with four opposing V- shaped paddles.	_____	_____
B. This feature ensures that material remains in complete suspension.	_____	_____

	Comply	Does Not Comply
C. The mixer shaft shall be coupled from a 6 to 1 gearbox reducer to the hydraulic motor capable of 400 ft. lbs. of torque.		
D. The mixer rotates in both directions.		
E. For additional safety the mixer will shut off automatically when the loading hatch is opened.		
F. Other_____ _____		

15. ENGINE

A. The unit shall be equipped with a diesel engine complying with the following specifications: Electric Start Three Cylinder, 19 HP (14.2 17.8 kw) Tier 4 Final Emissions Full Flow Oil Filter Water cooled. Dual Speed Control Engine Shutdown Package (low oil pressure & high temperature) Digital Engine Controller		
B. Digital engine controller shall have a gauge package that includes battery voltage, hour meter, and engine RPM. It shall also have an Auto Start function which preheats and starts engine.		
C. The controls will run the engine at "warm up" RPM for 30 seconds before it automatically adjusts to a standard engine idle RPM for material heating. There is a switch that raises engine speed for mixing the material when ready and/or needed.		
D. Other_____ _____		

16. FUEL CAPACITY

A. The melter shall have a 26 gallon (98.42 l) diesel fuel tank for operation of the entire unit.		
B. The unit will be capable of operating for a minimum of 12 hours on one tank of fuel.		
C. The tank shall be equipped with full length sight gauges for fuel level indication protected in a steel cover.		
D. The fuel tank meets all FMCSA requirements for non-side-mounted fuel tanks by meeting CFR Title 49, Part 393.67.		

16. TOOL HEATING BOX AND TOOLS

A. The tool heating box shall be 44 inches (111.7 cm) in height, 14 inches (35.5 cm) in width, and 30 inches (76.2 cm) long.		

	Comply	Does Not Comply
B. The tool heating box shall be constructed of not less than 0.105 (0.267 cm) HRS outer skin, be insulated with a minimum of 1 inch (2.5 cm) thick high temperature ceramic insulation and have 0.06 (.15 cm) stainless steel inner liner.	_____	_____
C. Fiberglass or rock wool insulation is unacceptable due to their moisture retention properties resulting in a significant loss of their insulating value over an eighteen-month period.	_____	_____
D. The diesel burner shall be bolted to the side of a combustion chamber and the tool heating box is welded to the top of this chamber.	_____	_____
E. The burner shall have a minimum of 82,000 BTU supplied by a 12Vdc burner.	_____	_____
F. The burner shall be controlled by an “On” – “Off” switch located at the rear of the machine.	_____	_____
G. The tool heating box shall include a front door opening for heating larger tools. The door opening shall be 26.8 inches (68.1 cm) in height, and 11.5 inches (29.2 cm) in width. The door opening is designed in such a way to support the tool handle when the door is closed.	_____	_____
H. The tool heating box shall include a side door opening for cleaning out used material. The door opening shall allow access to the entire lower portion of the burner box.	_____	_____
I. The tool heating box shall include an internal removable deflector/chute to protect the burner from tool damage and to direct used material into the collection area away from the burner.	_____	_____
J. Tools included shall be: Two (2) each ironing wands, Two (2) each chute scrapers, One (1) each tank scraper, Two (2) each metal pour buckets.	_____	_____
K. Other_____ _____	_____	_____

17. PAINT

A. All painted surfaces shall be coated with Axalta two part epoxy paint applied by Axalta certified painters	_____	_____
B. Other_____ _____	_____	_____

18. MISCELLANEOUS

A. There shall be a gate valve at the rear of the machine.	_____	_____
B. Other_____ _____	_____	_____

19. TRAINING

	Comply	Does Not Comply
A. An authorized, factory-trained representative will be made available for a full day of training at a facility designated by the bidding agency.		
B. At this training session a complete operational, mechanical and safety overview will occur.		
C. Both safety and operational manuals will be viewed and discussed with all concerned personnel.		
D. Additionally, the representative will be available at that time for "on the job" safety and field training.		
E. Other_____ _____		

20. SAFETY AND TRAINING MANUALS

A. A written Safety Manual will be provided to the bidding agency.		

21. PARTS

A. Bidders must show proof that a large stock of parts for the model of equipment upon which they are bidding is maintained at their facility.		

22. AWARD

A. Equipment is for use by the Highway Department and must meet the requirements of that agency as interpreted by the Highway Commissioner.		
B. Prior to award the Purchasing Agency may require a visit to the supplier's facility to assure supplier has plant capacity to manufacturer and deliver equipment on time as required.		
C. If it is determined that the supplier cannot supply as requested, this is just cause for cancellation.		

23. WARRANTY

A. The manufacturer shall warranty the equipment for two years or as otherwise noted in the manufacturer's standard warranty policy.		

24. QUALIFICATIONS OF BIDDERS

A. No bid will be considered unless the bidder can meet the following conditions:		
B. Bidder must have a parts/service location and keeps a sufficient stock of parts on hand at all times.		
C. The equipment offered is a stock model chassis that meets the requirements of the specifications without material changes or		

	Comply	Does Not Comply
modifications.		
D. The model is regularly advertised and sold by the manufacturer.		
E. The bidder has been engaged in the sale and support of this make and model of equipment for at least twenty-four months.		

OPTIONS (X if to be included):

_____ 56825 - Removable Material Chute
The material chute shall be minimum 37 inches (93.98 cm) in length by 8 inches (20.3 cm) in width by 4 inches (10.2) in depth with a steel thickness of 0.1345 inches (0.34 cm). The material chute shall pivot under the material drain and be easily removable. The material chute is designed to aid in the placement of material from machine directly into repair area.

_____ 57781 - Propane Torch and Bottle
30 lb. bottle with regulator, 500,000 BTU propane hand torch with 20 foot (6.1 meter) hose.

_____ 57783 - Heated (heat transfer oil) Removable Material Chute
The heat transfer oil heated material chute shall be minimum 37 inches (93.98 cm) in length by 8 inches (20.3 cm) in width by 4 inches (10.2) in depth with a steel thickness of 0.1345 inches (0.34 cm). A hydraulic driven 1.5 GPM heat transfer oil pump will circulate the oil from the heat transfer oil tank into the heated chute and back into the heat transfer oil tank. The heated chute shall pivot under the material drain and be easily removable. The heat transfer oil lines going to the chute shall have swivels and be insulated to protect the machine operators from burns. There shall be shut off valves on the heat transfer oil lines between the chute and the tank. The heated material chute is designed to aid in the placement of material from machine directly into repair area.

_____ 57650 - Hot Mastic Applicator
For handling and distributing PolyPatch material from the Patcher to the repair area. Propane heated with material side discharge gate.

_____ Shoe Boxes (various sizes): (L X W X H)

_____ 58540N - Deep X Small	8 X **4** X 6	_____ 58550N - Shallow X Small	8 X **4** X 3
_____ 32255 - Deep Small	8 X **8** X 6	_____ 32350 - Shallow Small	8 X **8** X 3
_____ 32250 - Deep Medium	8 X **10** X 6	_____ 32351 - Shallow Medium	8 X **10** X 3
_____ 32252 - Deep Large	8 X **12** X 6	_____ 32352 - Shallow Large	8 X **12** X 3
_____ 32253 - Deep X Large	8 X **14** X 6	_____ 32353 - Shallow X Large	8 X **14** X 3

_____ Drag Boxes (Non-heated or Heated Material Chute is required for use):
_____ 57885 - 10” & 4” Wide
_____ 57886 - 24” Wide
_____ 58513 – Drag Box Weight Plate, 25lb.
_____ 58517 – 36” Wide
_____ 58520 – 48” Wide

_____ 32243 – Extra Iron (2 included as Std)
_____ 32246 – Extra Chute Scraper (1 included as Std)
_____ 32258 – Extra Tank Scraper (1 included as Std)
_____ 32263 – Metal Bucket (2 included as Std)
_____ 20016 - 2 ½ Inch Pintle Hitch
_____ 20014 - 3 Inch Pintle Hitch
_____ 26058 – 10lb Fire Extinguisher & Cover
_____ 26059 – 10lb Fire Extinguisher Mounting Bracket
_____ 26098 - Tool Box
_____ Custom Paint
_____ Surge Brakes
_____ 45535 - Engine Cover
_____ 45599 – Engine Cover, Insulated
_____ 43549 - Spare Tire and Mount Bracket Kit
_____ 24086 - Lockable Battery Box
_____ 24194K - 220V Overnight Heaters (2 req’d) (110V Heaters are standard)
_____ Various Safety and Work Light kits, see brochure for more info.
_____ 20120 - Hitch Extension, 18”
_____ 20140 - Hitch Extension, 28”
_____ 20150 - Hitch Extension, 39”
_____ 24227 - Truck Connector, 7 Pin Round RV Connector, Blade Terminals

_____ 24183 - Truck Connector, 7 Pin Round Connector, Round Terminals
_____ 24074 - Truck Connector, 6 Pin Round Connector
_____ 23950N - Truck Connector, 5 Pin Flat Connector
_____ 47268PK - Engine Gauge Package
_____ 23119 – Cab Brake Controller
_____ 23120 – Breakaway Battery w/ Charger
_____ 26119 – Safety Hook w/ Latch (2 Req'd)

APPROVED EQUAL

The approved make and model for this specification is a Crafco Patcher II. Bidders offering to supply other than the approved make and model must supply a detailed description of the equipment being offered. Bidders offering to supply equipment other than the approved make and model shall also supply a list of references of who have successfully heated, mixed and applied Crafco TechCrete, Mastic and Matrix through the equipment being offered. For purposes of comparison a separate list of all deviations to this specification must be attached to your bid document.

Prior to bid award an on-site demonstration of the equipment offered may be requested. All bidders offering other than the approved model listed will be required to provide an on-site demonstration to verify that their unit complies with all specification requirements before their bid will be considered.

Failure to carry out the provisions noted herein is deemed sufficient reason to reject the bidder's proposal.